UNION CARBIDE

NUCLEAR DIVISION NEWS

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 5 - No. 4 February 21, 1974

QUESTION BOX

If you have questions on company policies, benefits, etc. or any other problems with which we might help, just let us know. Drop your inquiry to the Editor, Nuclear Division News. *(Or telephone it in to your plant news representative.) You may or may not sign your name. It will not be used in the paper.*

Questions are referred to the proper authorities for accurate answers. Each query is given serious consideration for publication.

Answers may be given to employees personally if they so desire.

QUESTION: The Y-12 Plant being as large as it is, what is done with all the paper generated in this Plant? Who or what group decides how long these records will be maintained? Who keeps the historical records of the Nuclear Division?

ANSWER: Some of the unclassified records, when they are no longer needed, are sold for scrap. The classified ones are disposed of according to security regulations as they become obsolete.

The retention periods for records generated by the four Carbide installations have been approved by the Nuclear Division and, where applicable, the Corporation's New York Office, and the Atomic Energy Commission. Records are kept until the end of the approved retention periods. The Plant Records Department is responsible for administering the retention program.

There are very few historical records, but some have been designated and are maintained for an indefinite retention period, either here or in Federal Archives in Atlanta.

QUESTION: Why is a list of products sold at the Company stores not available? Such a list, posted at appropriate locations, would be a time-saver for plant employees and might help reduce the crowded conditions at the Company stores.

ANSWER: Union Carbide operates Company stores at many facilities around the country as a convenience to employees. They are primarily for the purpose of selling Carbide products or merchandise made from Carbide products. We want to minimize competing with local merchants and the publishing of a products list could be construed as an advertisement. Fortunately, serious over-crowding at our Company stores occur mainly during the holiday season.

QUESTION: What is the policy of the Nuclear Division concerning pay or other compensation (time off, etc.) for exempt salaried employees required to work overtime? I realize that the nature of the job for exempt employees is such that extra time may be required due to various situations that might arise. However, when such occurrences are frequent and for reasons beyond the control of the particular employee, there seems to be no compensation offered. For example, one large department has in the past "asked" many employees to work an extra half-day one day per week for periods of several months or more with no compensation other than a meal allowance. Does this practice fit with Company policy?

ANSWER: As you state, exempt employees are expected to work a certain amount of overtime, if this is necessary to accomplish their assigned responsibilities. If only a limited number of exempt employees are involved, it is intended that some compensating time off be used to offset overtime if significant amounts are necessary over an extended period of time.

If, however, unusual workload conditions require that all exempt employees in an entire department or group be scheduled for extra hours of work on a continuing basis over an extended period of time, it is Company policy to place these employees on an extended work schedule, which provides for additional compensation.

AIPE MEETING

The Knox Area Chapter of the American Institute of Plant Engineers will meet at 6:30 p.m. on February 26 at the Deane Hill Country Club in Knoxville.

Dvon Brogan, an ORNL landscape architect, will review landscaping and groundskeeping operations recommended for the winter and spring seasons.

Persons working in the field of plant engineering who are interested in attending the meeting should call K. E. Jamison, Knoxville 588-3333, or extension 3-1381 for reservations. Reservations should be made by February 25.

Next Issue

The next issue will be dated March 7. The deadline is February 27.

Major reorganization planned March 1 for Nuclear Division

Charles J. Parks

Paul R. Vanstrum

A major reorganization within the Nuclear Division of Union Carbide Corporation, effective March 1, has been announced by Roger F. Hibbs, Division President.

> Paul R. Vanstrum, who has served as Vice-President for Production in the Nuclear Division since 1969, has been appointed Vice-President for Engineering and Development.
>
> Charles J. Parks, Director of Manufacturing for the Carbon Products Division, Union Carbide Corporation, has been named to the new position of Vice-President for Operations of the Nuclear Division.

Announcing the two new major appointments, Hibbs explained reorganization of various activities under the two vice-presidents will "better enable the Nuclear Division to handle the many challenges facing us during the remainder of this decade."

Among these challenges, he said, are the cascade improvement program and power uprating program at the gaseous diffusion plants; the gas centrifuge development program; and the potential involvement by the Nuclear Division in energy programs other than those related to nuclear.

Responsibilities assigned

Vanstrum will be responsible for engineering, computer sciences, production technical, and operations analysis programs within the Nuclear Division.

As Vice-President for Operations, Parks will have direct responsibilities for the activities of the Oak Ridge and Paducah gaseous diffusion plants, and the Oak Ridge Y-12 Plant.

Vanstrum received his B.S. degree in chemical engineering from the University of Minnesota in 1942. He began his career with Union Carbide in 1942, and in 1944 joined a group at Columbia University which was formed to work on development of the gaseous diffusion process. Later that year he transferred to Oak Ridge. He was appointed the Division's technical director in 1967, and vice-president for production two years later.

Received Lawrence award

Vanstrum has made significant contributions to isotopic separation technology and particularly to the gaseous diffusion process. He is a recipient of the Ernest O. Lawrence Memorial Award of the Atomic Energy Commission, and the Outstanding Achievement Award of the University of Minnesota.

Vanstrum, who is married to the former Kathleen Johnson, lives at 104 Ogden Lane, Oak Ridge. They have three children.

Parks received a bachelor of science degree in mechanical engineering from Virginia Polytechnic Institute in 1948, following which he joined the Carbon Products Division in Cleveland, Ohio. In 1950 he transferred to the Fostoria,

(Continued on page 8)

Food production and energy usage, direct and indirect relationships

By Eric Hirst

In today's society, delivering dinner to your table is a surprisingly complicated affair. The process involves farms, chemical plants, machinery manufacturers, oil refineries, food processors, trucks, trains, warehouses, supermarkets, refrigerators and stoves. Each of these functions and pieces of equipment requires energy for its production and operation. Altogether, the energy used to carry out food-related activities in the United States amounts to 12 percent of our national energy budget, equivalent to 1.5 billion barrels of oil for 1972.

American farms directly consume 1 percent of the national energy budget for the operation of tractors, trucks and other farm equipment and for irrigation, heating, ventilating and crop drying. An equal amount of energy is consumed by other industries to produce chemical fertilizers, insecticides and pesticides; farm machinery; and other farm supplies. Fertilizers account for the largest portion of this indirect energy use.

Meat costs more

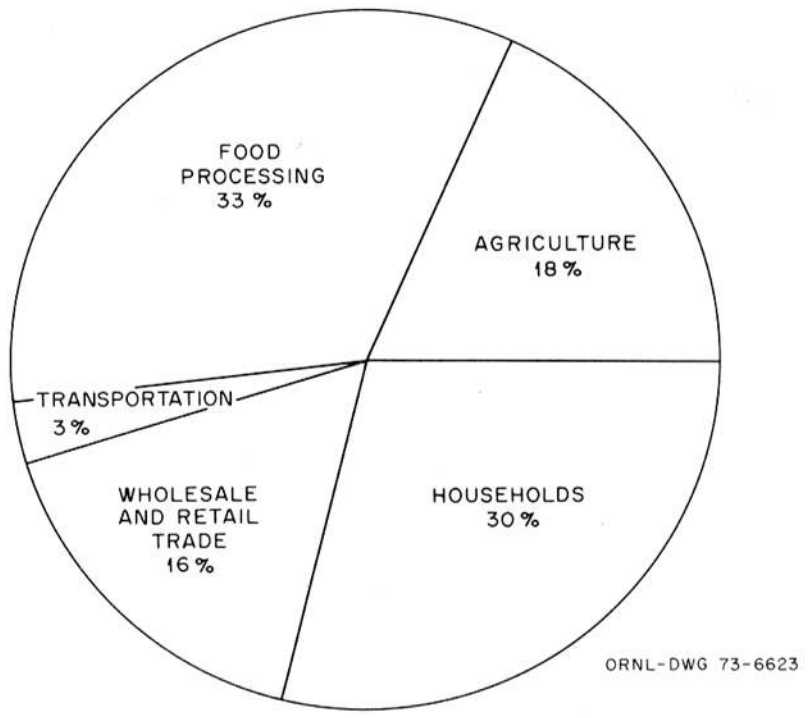
The table below shows how this energy is used in producing food energy and food protein. Obtaining protein from meat is five times as costly, in terms of energy, as eating grains for their protein content. The ratio of energy inputs between meat and grains for food energy is almost ten.

As Frances Lappe shows in **Diet for a Small Planet** (Ballantine Books, N.Y., 1971), we can obtain both the quantity and quality of protein we need by eating the right combinations of grain, vegetable, and dairy products. In this way, our dependence on meat can be reduced. Such a shift would conserve land, food and energy resources, and save money for consumers.

Processing and shipping

Because American society is so urbanized, most of us live far from farms. Therefore, food must be transported long distances from farm to market. Because of these distances and also because we love convenience (and can afford it), most food is processed before shipment to consumers. In part, processing is important for health reasons, but the preparation of TV dinners and frozen desserts increases neither the healthfulness of our food nor its nutritional content. But processing does increase the energy costs of food.

For every calorie of primary energy devoted to farming, two calories are used by food processors to chop, cut, grind, boil, steam, freeze, dry and package foods. Food processors consume, directly and indirectly, about 4 percent of the national energy budget each year, exclusive of agriculture. This means that food processing increases the energy costs of food by more than a factor of three relative to farming. For example, it takes more than four times as much energy to deliver a unit of **processed** fruit or vegetables than it does to deliver a unit of **fresh** fruit or vegetables.



Retail trade sector

From processing plants, food is shipped to wholesalers and from there to retailers - grocery stores, supermarkets, restaurants and drive-ins. These trade and transportation activities consume another 2 percent of our national energy budget. Most of this energy is used by the retail trade sector. Supermarkets use energy to light, heat and air condition their stores; to advertise; and to freeze food. Restaurants and fast-food chains use energy for refrigeration and cooking, as well as for lighting, heating and air conditioning.

Finally, we come to the consumer. The typical housewife drives more than four miles from home to supermarket at least once a week in a two-ton car. In addition, energy is used at home for freezing, refrigerating and cooking food. These activities consume 4 percent of the national energy budget, almost twice as much energy as is used to grow food on farms.

12 percent of budget

The total of all these food-related energy uses is 12 percent of the United States' energy budget. Agriculture uses one-sixth of the food energy budget, and agriculture and processing together account for just over half. The household sector uses nearly a third, and trade and transportation account for the rest. Thus, services associated with food use almost as much energy as do farming and processing.

A comparison of the energy used to grow, process, transport, sell and prepare food with the energy content of the food itself shows that more than six calories of energy inputs are required per calorie of food eaten in the United States. Primitive societies, which use no fuels, grow and distribute food with only solar and human energy inputs.

If past trends continue, food-related energy use will increase in the future. However, fuel shortages, rapidly increasing fuel prices, growing oil imports and a host of other problems related to our use of energy suggest that past trends will not continue. Fortunately, many options exist for slowing food-related energy growth.

Consumers' role

In the home, for example, smaller refrigerators and ovens with thicker insulation would use less electricity than do present units. Closer attention to the use of ranges and ovens (e.g., not opening oven doors so often) would also save energy. Greater reliance on vegetable and grain products rather than meats for protein would reduce fuel use. Similarly, less use of heavily processed foods - such as cheese spreads in aerosol cans - would save energy. Consumers who grow their own food in backyard gardens save energy by eliminating the energy costs of transportation and trade. Food grown and prepared at home requires only about half as much energy as the same food purchased commercially.

Retailers could save energy by using closed freezers to display food and by reducing lighting levels. Processors could use heat recovery methods, more efficient processes and less packaging to save energy. Shipping more food by train rather than by truck would also cut energy costs.

Farmers could cut use

Farmers could reduce fuel use by combining operations (e.g., disk/plant, fertilize), by reducing tillage practices and by increasing use of diesel, rather than gasoline, engines. Increasing labor inputs to farming would reduce fuel needs. Replacing some chemical fertilizers with animal manure and increasing crop rotation would cut agricultural energy use significantly. Direct use of solar energy (e.g., windmills) would reduce the use of fossil-fuel-generated electricity for both agricultural and household purposes.

Thus there are a number of ways in which growth of food-related energy use could be slowed. Cutting back on energy use to produce, process, transport and prepare food is an important means of conserving energy which can be achieved at both the corporate and individual levels.

Agricultural Energy Use for Different Food Types

Food type	Energy input (Calories) per unit of Food energy (Calories)	Food protein (Grams)
Grains	0.3	11
Vegetables	0.4	30
Dairy products	1.7	35
Fish	2.6	20
Meat	2.9	57
Average of all foods	1.1	42

ORGDP

RIDE WANTED from West Vanderbilt Drive area, Oak Ridge, to Portal 6 or 2 at ORGDP, straight days. Beverly Rice, plant phone 3-5077 or Oak Ridge 482-4328.

JOIN car pool from University of Tennessee area to K-1007 or administrative area, 7:45 a.m. - 4:15 p.m. R. L. Cox, plant phone 3-3146, home phone Knoxville 546-4857.

ORNL

JOIN CAR POOL from Outer Drive Shopping Center vicinity, Oak Ridge, to East Portal, 8 a.m. shift. G. F. Smith, plant phone 3-5308, home phone 483-3127.

CAR POOL MEMBERS from Waddell, West Outer or Pennsylvania Avenue area, Oak Ridge, to East Portal, 8 or 8:15 a.m. shift. Tom Burnett, plant phone 3-6974, home phone 483-1975; or Dick Reed, plant phone 3-1901, or home phone 483-3458.

RIDE from Lind Place, West end of Oak Ridge, to West Portal, 8 a.m. shift. M. A. Davis, plant phone 3-6584.

Y-12 PLANT

TWO riders from Rockwood to any portal, straight day. David Heidle, plant phone 3-5391, home phone Rockwood 354-3853.

TWO CAR POOL MEMBERS or RIDERS from Kingston to any Portal, straight days. L. C. Vann, plant phone, 3-7789, home Kingston 376-7548.

RIDE from Oak Ridge Highway, Karns section, to Central Portal, straight day. Frances Burkhalter, plant phone 3-7727, home phone Karns 588-9901.

RIDER from Merchants Road, Clinton Highway, to any portal, straight day. H.A. Mayes, plant phone 3-7724, home phone Knoxville 687-3735.

CAR POOL or RIDE from Concord-Farragut vicinity to West Portal, "J" Shift. Ralph Reed, home phone Knoxville 966-5370.

CAR POOL or RIDE from Lovell Road-Bob Gray Road vicinity to West Portal, "J" Shift. H. E. Hamilton, plant phone 3-7287, home Knoxville 966-5265.

CAR POOL members from South Hickory Lane, Oak Ridge, to any portal, straight day. Henry J. Tyl, plant phone 3-7724, home phone Oak Ridge 483-7184.

RIDE from North Knoxville to East or North Portal, straight day. Dudley Grizzle, plant phone 3-5320, home phone Knoxville 525-9744.

It seems like one of the hardest lessons to be learned in this life is where your business ends and somebody else's begins.

DOES THE FACE MATCH THE BADGE? — Frances Wright checks the badge of ORNL employee, Mary Jimmerson, as she drives through the West Portal, while Christine Washington looks on.

Female guards invade realm of 'man's world' in Security

Recent visitors to the Nuclear Division have seen some good examples of women holding jobs that were traditionally limited to men. Christine Washington and Frances Wright, ORNL, are the first female security guards to be hired in the Nuclear Division. ORGDP has since transferred Julia Fisher and Terri T. Littleton from other jobs at the facility to its security force.

The new additions to the Laboratory Protection Division also caught most employees at ORNL by surprise. One employee recalls coming to work as usual (half asleep) one October morning and being shocked awake by a woman checking his badge. "I'll have to admit it wasn't too bad after I got over the initial shock."

Both Mrs. Washington and Mrs. Wright feel they have been received well by employees at ORNL, especially the other guards in the department. "The men have accepted us and do all they can to help," says Mrs. Wright.

Ben Beeler, head of the fire and guard department, says he has been very pleased with the progress made by the two "rookies." Although their initial 90-day training period is barely up, both women have come a long way in learning the duties and responsibilities of a security guard. A major accomplishment for Mrs. Washington was mastering the use of a firearm. "I used to be afraid to look at a gun, let alone pick one up," she says. But those days are over. Beeler says that both women have qualified on the firing range.

Mrs. Washington is a native of Clinton. She and her husband, Bobby, have two daughters, Kristie and Cynthia. In her spare time Mrs. Washington enjoys playing softball and basketball and fishing.

Mrs. Wright, a native of Harriman, worked at Burlington Hosiery Mill for almost 25 years before joining the ORNL staff. She enjoys camping, swimming and horseback riding. She and Joe, her husband, also enjoy spectator sports, especially basketball. Their son, Eugene, plays for Harriman High School.

The latest additions to the security force at the Oak Ridge Gaseous Diffusion Plant feel no reluctance on entering a "man's world."

Terri T. Littleton and Julia Fisher both told the **News** recently they welcome their new assignments, with no qualms over "men's work."

Uniforms have not yet arrived for the ORGDP female guards, but are expected shortly.

Actually, security procedures are second-nature to Mrs. Littleton, since she has done clerical work in security for more than four years. She and her husband, Ronnie, a student at Roane State College, live in the Cherokee Hills section of Kingston.

Both guards hit the midnight shift last week, and thought it was "great."

Miss Fisher, who lives in Lenoir City, came to this area from Akron, Ohio. She did clerical work there for a trucking firm for more than 16 years, and came to ORGDP in January of this year.

"Guard duty is fine," she smiled. "I have no qualms at all."

Actually, female security guards are no new thing around Oak Ridge. During the early days of the Manhattan Project, literally scores of "guardettes" protected the premises.

PATENTS Granted

To William J. Werner, formerly of ORNL, for "Fluxless Aluminum Brazing."

To John M. Napier and Anthony J. Caputo, Y-12, for "Method for Providing Metallic Carbide Coatings on Graphite."

To Lowell W. Anderson and Michael J. Stephenson, ORGDP, for "Production of Sintered Porous Metal Fluoride Pellets."

To Charles H. Mason, Paducah, for "Multipoint Monitoring System."

To John W. Koger and Eugene J. Lawrence, ORNL, for "Electroless Coating of Molybdenum on Stainless Steels."

Loren Lawhorn named shift superintendent in Y-12

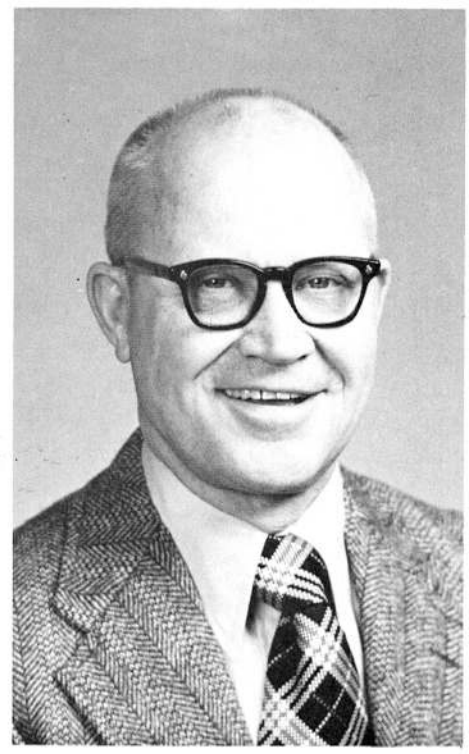
Loren M. Lawhorn has been named a shift superintendent in Y-12, according to George W. Evans, head of the Shift Superintendents Division. Lawhorn, formerly in the safety department, also worked in training, employment, wage standards, and quality control in Y-12.

He joined Union Carbide in 1953, having previously worked for Tennessee Eastman in Y-12 in 1943.

A native of Rugby, Lawhorn holds a B.S. degree from Tennessee Polytechnic Institute and an M.A. from George Peabody College for Teachers. He taught school in Morgan County and was principal of Sunbright High School at the time he joined Y-12. He is also a veteran of the U.S. Navy.

Mrs. Lawhorn, the former Azilee Pate, is a math teacher at Rockwood High School. The couple lives at 120 Newridge Road, Oak Ridge. They have four children: Edward, attending Carson Newman College; Donald, serving in the Paratroops; and Susan and John, attending schools in Oak Ridge.

Lawhorn is a member of the American Society of Safety Engineers, and is membership chairman of the East Tennessee Chapter. He has been a certified safety professional since 1972.



Loren M. Lawhorn

Calendar of EVENTS

TECHNICAL

February 26

University of Tennessee Department of Chemistry General Seminar: "The New Moon: Scientific Results of the Apollo Manned Lunar Landings," Prof. G. Davis O'Kelley. 414 Buehler Hall, UT Campus, 4 p.m.

February 27

Chemical Technology Division Seminar: CTR Supportive Research -- "Li-H Isotope Equilibrium," F. J. Smith; and "Effects of a Magnetic Field on Fluid Streams," S. Cantor. Central Auditorium, Building 4500N, 3 p.m.

March 14-15

Sixth Symposium on Advanced Analytical Concepts for the Clinical Laboratory: Central Auditorium, Building 4500N. March 14, 9:20 a.m.; March 15, 9 a.m.

COMMUNITY

February 23

Oak Ridge Civic Music Association presents: The Fine Arts Quartet, Oak Ridge Playhouse, 8:15 p.m. Admission: adults $5; students $2.50.

February 24

The Kiwanis Clubs present: Travel and Adventure Series, "Amazing Switzerland," Oak Ridge High School Auditorium, 3 p.m. Admission: adults $2; students $1.

March 1-2

Oak Ridge Playhouse presents: "The Play's the Thing," Playhouse, 8:20 p.m. Other performances March 8, 9, 15 and 16.

DISTAFF GUARDS AT ORGDP — Julia Fisher, left, and Terri T. Littleton are the latest additions to the security force at ORGDP. Miss Fisher checks identification in the card-file, while Mrs. Littleton converses with another guard on patrol duty.

NUCLEAR DIVISION NEWS

UNION CARBIDE

Published twice-monthly for
The Employees Of
UNION CARBIDE CORPORATION
NUCLEAR DIVISION

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Keeney promoted foreman in ORNL's P&E division

Jack Keeney was recently named a foreman in the research services department of the Plant and Equipment Division at ORNL.

Keeney

Keeney first started work in ORNL's mail department in 1956. He later became a pipefitter's helper and was recommended for the Apprentice Training Program. His company service was briefly interrupted while he served a term of assignment in the U.S. Air Force. Following this assignment, Keeney returned to ORNL and was promoted to journeyman pipefitter.

Keeney is a native of Clinton. He and his wife, Toshiko, live at 924 Medaris Street, Clinton. They have a daughter, Carol, and a son, Tommy.

INFORMAL VIS A VIS — Anne Nourry, a reporter for the France-Soir, the largest daily in Paris, chats with Nuclear Division President Roger F. Hibbs, left, and Herman Postma, director of Oak Ridge National Laboratory. Miss Nourry was a Fellow with World Press Institute visiting in this area recently. The group's interest centered on energy this year.

WORLD PRESS FELLOWS — Visiting facilities in the Oak Ridge area was the above group, Fellows of World Press Institute. In the front row, from left, are Jon Hosoien, Norway; Mary Lee, Singapore; John Raedler, Australia; and Neagu Udroiu, Romania. In the second row are Anne Nourry, France; Guy Barth, Ivory Coast; Lesley Hall, Scotland; Manuel Sandoval, Mexico; and Stephen Siu, Hong King. In the back row are Mark Stedman, program director for WPI; Paul Scherburne, and Robert Matters, both with WPI also; Ayman El-Amir, Egypt; and Ciro Gamarra, Peru. The visiting journalists were on a five-week tour of the South. During March each writer will work on a major media to gain an inside view of American news operations.

Prospecting at sea's bottom detects 30 different elements

Prospecting has gone to sea with a new device to detect precious metals on the ocean floor.

Scientists at Battelle-Northwest have announced development of a nuclear probe which can analyze the specific concentrations of seabed mineral deposits. The unit can spot 30 different elements and, in a matter of minutes, deliver a complete report on the quantities of copper, silver, gold, manganese and other valuable metals in natural deposits.

In recent weeks the nuclear device has also aided recovery of historical artifacts from a site off the Florida Keys where a Spanish galleon went down 250 years ago. This demonstration was for the firms holding salvage rights to the wreck of the "San Jose."

The probe uses a technique called "in-situ seabed neutron activation analysis." It was developed by Battelle under sponsorship of the U.S. Atomic Energy Commission's Division of Applied Technology. A sea-going prototype is currently being tested on natural and simulated minerals in the Florida waters.

Uses californium-252

The detector-analyzer probe is the result of two-and-a-half years of research and development work. It is expected to find use in geophysical mapping of the ocean floor, but scientists say it could also point the way to "the real natural treasures of the sea" — vast fields of mineral deposits known to exist at great depths.

"This is the first self-contained instrument for on-site analysis of seabed minerals by a direct probing technique," said Richard Perkins, leader of the BNW project. The technique makes use of californium-252, a man-made element which emits a directed beam of low energy neutrons. Operation of the probe is a two-phase procedure: Shaft exposure of a small area on the ocean bottom and detection of the "delayed gamma rays" which result from the induced radiation

"Different elements give off distinctly different energy patterns after exposure to an isotopic source," Perkins said.

Safe to environment

"The amount of the elements present can be determined by analyzing the spectrum of the short-lived gamma radiation." A shipboard computer produces a complete printed report on the concentrations of minerals present. The entire procedure takes from three to five minutes.

"This kind of induced radioactivity poses no environmental problems. In fact, we have found that the induced radiation is less than 1-10 to the natural radioactivity on the ocean floor only a few hours after the exposure," Perkins said.

Californium-252 is one of the newer products of nuclear technology and was recently made available to researchers by the AEC. The Battelle unit contains 0.2 milligrams (about 1-100,000 of an ounce) of the artificial element.

In deeper waters

The seabed probe and its companion detection unit are mounted on a heavy A-frame which can be lowered from a ship onto any promising site. "The only limitation to its operation is the length of the cable," Perkins said.

The BNW research program for the AEC calls for eventual development of a "towable" version of the probe which can be used for continuous analysis along a strip of the ocean floor. Future studies will include demonstrations along the continental shelf in areas where mineral deposits are known to exist. But the biggest treasures of the sea lie in deeper water -- the natural formations called "manganese nodules."

'On-site' assay

"These so-called nodules represent the world's greatest known natural deposits of many valuable minerals," Perkins said. "In certain parts of the Pacific the bottom is literally covered with them, but that's usually at depths of three to four miles.

"Harvesting these rich deposits will be an expensive operation and a major problem is that their composition varies. Principally, of course, the nodules contain manganese, but in many locations they are high in copper, nickel, cobalt and other metals of greater commercial interest. The probe permits an on-site assay of such deposits."

Other minerals sought

A number of private firms around the world are investigating methods for dipping into the deep mineral storehouse. "The size of these manganese deposits has been estimated in the billions of tons, enough to satisfy worldwide needs for decades," Perkins said. His continuing research program for the AEC has already included test analysis of "manganese nodules" and other natural minerals. The initial field studies which began at Battelle's Marine Research Laboratory at Sequim Bay, Washington, are continuing in Florida.

A PERSONAL SAFEGUARD

A monthly breast self-examination is a woman's personal safeguard against breast cancer. Our local American Cancer Society unit has simple instructions on how to do the exam, along with a reminder to do it regularly.

Mazur heads section in biology division

Peter Mazur

Peter Mazur has been named to the position of scientific director of the biophysics and cell physiology section of Oak Ridge National Laboratory's Biology Division. The appointment, which became effective February 1, was made by Howard I. Adler, Biology Division director.

Mazur succeeds Richard B. Setlow, who is planning to leave Oak Ridge this fall with his family.

Well known for his success in freezing mouse embryos, Mazur said he expects to continue his cryobiology research in addition to advising Adler on long-range planning for biophysical programs. Adler has indicated that future Biology Division research programs may include more non-nuclear types of activities.

A native of New York City, Mazur holds B.A. and Ph.D., degrees from Harvard University. He joined the Union Carbide organization in September, 1959, and in 1965 was named group leader in cell physiology.

He is president of the International Society for Cryobiology and is a member of the Webb School board of trustees. His wife is the former Drusilla Stephens and they have a son, Timothy. They reside at 125 Westlook Circle, Oak Ridge.

COMPANY Service 20 25 30

ORGDP

30 YEARS

Martin S. Ginsburg, Al Gross and Karl O. Johnsson Jr.

25 YEARS

Berris Stepp and Gordon F. Mills.

20 YEARS

Donald M. Shepherd and Ruth W. Patterson.

Y-12 PLANT

30 YEARS

Clyde T. Russell, David H. Treece, Frankie H. Goss, Mary W. Cooper, Herschel K. Bailey, Alvie H. Gough and William A. Pfeiler.

25 YEARS

Sally M. Jansch.

20 YEARS

George T. Pyle, Ivan D. Gilley, J. W. Nicely, Lawrence L. Ellis, William A. Gardner, William F. Griffith, William O. Peterson, Alvin E. Parson, David C. Martin Jr., Charles E. McMahan, Aubrey L. Donald, Virgil H. Smallen, Wade M. Roberts and Roy O. Davis.

ORNL

30 YEARS

Gordon G. Warner is a computer applications programmer in the Computer Sciences Division.

SECRETARIAL INSTITUTE

The Knoxville Chapter of the National Secretaries Association and The University of Tennessee College of Business Administration will sponsor the 21st Secretarial Institute, March 1-2, at the Hyatt Regency in Knoxville.

There will be several interesting speakers on the general theme, "Attitude + Aptitude = Altitude." Floyd R. Greco, administrator of production control for the Aluminum Company of America, Pittsburgh, Penn., will deliver the keynote address, "Attitude - That's what It's all about."

Rebecca Rickman, secretary in ORNL's Neutron Physics Division, will participate in a panel workshop on "Aptitude - Getting it all together."

P&E DIVISION SAFETY AWARD — Employees of the field, transportation and support services department of ORNL's Plant and Equipment Division recently received the "Division Superintendent's Safe Worker Award." This group worked the entire year of 1973 without incurring a serious injury. From left are Larry Reeves, Jimmy Anglin, C. E. "Red" Clayton, Harry E. Seagren, Joe Brandon and Ted Sylvia. Seagren is Division Superintendent.

Stone Carr named to head cost engineering department

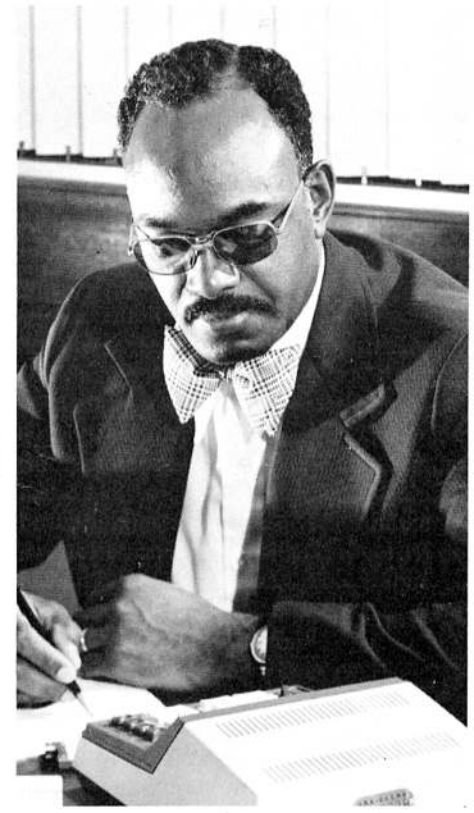
Stone N. Carr has been named superintendent of cost engineering, according to an announcement from Finis S. Patton, Design Engineering head.

Carr, a native of Blount County, is a graduate of Tennessee A&I, and has done graduate work at The University of Tennessee. He worked with the Tennessee Valley Authority before joining Union Carbide in 1968. He also served in the U. S. Corps of Engineers at the Army's Electronics Command at Ft. Monmouth, N.J.

Mrs. Carr is the former Gloria Henderson. The couple lives on Boyd Drive, Rockford. They have three children, Pamela, a student at East Tennessee State University; Stanley and Gina, students at Alcoa High School.

Active in civic affairs, Carr formerly served on the city council at Alcoa, and is presently on the board of directors of the Greater Knoxville Urban League.

He is a licensed contractor in the Alcoa-Maryville area.



Stone N. Carr

Gasoline like dynamite; storage means 'danger'

A gallon of gasoline is like 14 sticks of dynamite. That's the warning from the National Safety Council.

Carbide employees planning trips to distant points would do well to heed the warning. It also applies to storage of gasoline around the home.

Storage of extra gasoline in homes and cars as a hedge against the fuel shortage has been noted in many parts of the country. But the practice is a dangerous one, says the Safety Council.

"The explosive power of one gallon of gasoline has been compared to 14 sticks of dynamite. It is well to remember that the fuel and its vapors are soon parted, and that even a safety can is powerless to prevent a fire or an explosion in an auto trunk once gasoline vapors have escaped through its relief vent and an ignition source is present," says a Safety Council spokesman.

A cigarette or even a spark caused from electrical wiring can be sufficient to set off the vapors. Some states completely ban the transportation of gasoline in cans, and Tennesseans planning long trips should bear this in mind.

As for home storage, the National Safety Council said:

"If you must keep gasoline around the home, for a power mower or similar equipment, limit the amount to one or two gallons. Keep it in a labeled safety can designed specially for holding gasoline. Do not use makeshift containers, such as glass jars, plastic bottles, coffee cans, etc. Label gasoline cans: GASOLINE. EXTREMELY FLAMMABLE."

PATENTS Granted

To Michael J. Stephenson, John H. Pashley, David I. Dunthorn, all of ORGDP; and J. Robert Merriman, Paducah, for "Recovery of Purified Helium or Hydrogen from Gas Mixtures."

Kite serving on Y-12 industrial committee

Harvey T. Kite has replaced George W. Mitchel as Y-12's representative on the Nuclear Division's Industrial Potential Assessment Committee (IPAC).

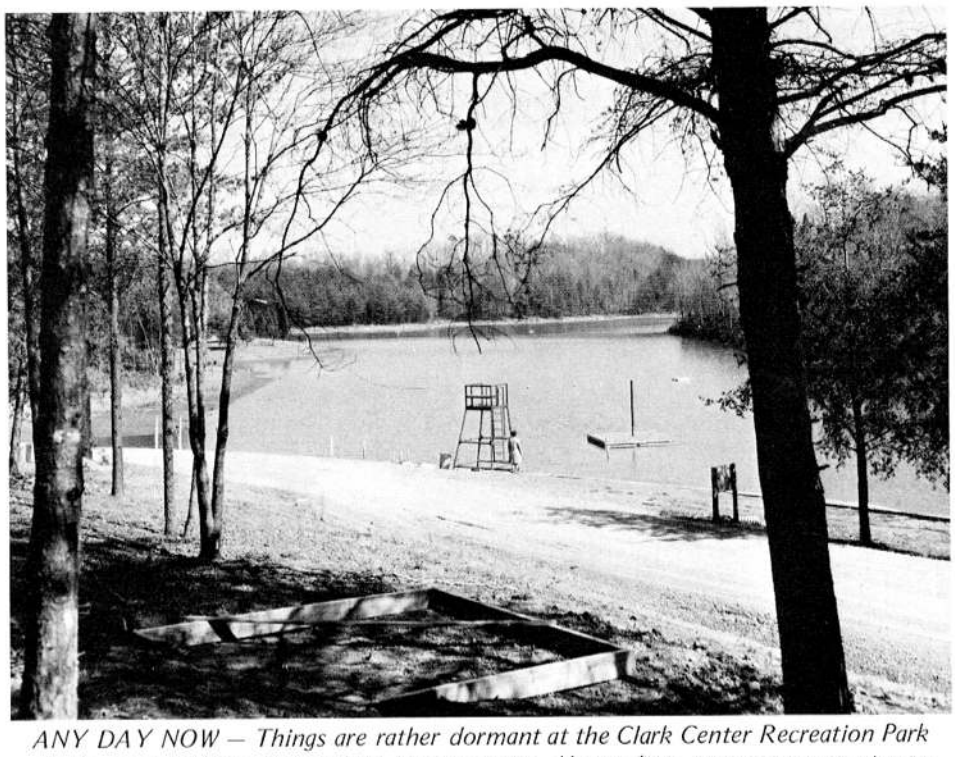
As Y-12's Industrial Cooperation representative, Kite will be responsible for collecting, evaluating and submitting for publication as IC Bulletins, information on Y-12's technologies of high potential interest to industry. He will also coordinate the responses to IC information requests, including plant visits by industry representatives wishing to confer with plant staff members on IC matters.

Sigma xi research society elects ORNLers to office

The Oak Ridge Chapter of Sigma Xi, The Research Society of America, has elected officers for 1974. Roger J. Cloutier is president. He succeeds Stanley I. Auerbach, ORNL. Other officers include William L. Marshall, ORNL, vice-president; Lester D. Hulett, ORNL, secretary; and William T. Rainey, ORNL, treasurer.

The research society was modified recently by the merger of two separate organizations, Sigma Xi and The Research Society of America. The organization encourages scientific research and interaction of scientists through its national magazine, **The American Scientist,** through local lectures of broad and timely scientific interest, and through other related activities.

A lecture on "The Chemistry of Coal," will be presented by G. Pedro Smith of ORNL and The University of Tennessee on February 28. Professor John Garcia, University of California at Los Angeles, will speak on "Adaptive Responses to X-Rays, Poisons and Pain," on March 20. Both lectures are to be given at 8 p.m. in the Jefferson Junior High School Auditorium in Oak Ridge. The public is invited to attend.



ANY DAY NOW — Things are rather dormant at the Clark Center Recreation Park at the moment but buds will be bursting soon. Here a lone woman gazes out over the swimming area, longing for Spring. The Recreation Department announced recently that camping will be discontinued at the park, to make room for much-needed picnic spaces, launching ramp, and related parking facilities.

CARBIDE PARK

In accordance with continuing development plans at Clark Center Recreation Park, camping will be discontinued this summer. The development plan prescribes the present camping site as the location of another much-needed launching ramp, picnic area, additional beach and related parking facilities. The overflow crowds and high employee participation experienced in the summer months for these activities justifies priority attention to this phase of development.

Y-12 BOWLING

The Rollmasters hold a two-point lead in the C Bowling League, ahead of the Rounders, as the Royal Flush edges into third place. Bill Ladd holds high aces thus far, a single game of 237, and a series of 630, both scratch, of course.

The Rebels pulled off a one-point jump in the Classic League, ahead of the Splinters. Len Hart's 642 scratch series is high this far in league rolling.

The Alley Cats keep a small edge over the Hits & Misses in the Y-12 Mixed League, as bowling passes the half-way mark in the second half. Hubert Brant, Goofers, rolled handicap scores recently of 249 for a single game of 632 for a series.

VOLLEYBALL LEAGUE

Netmen in the Volleyball League continue red-hot competition with two sets of teams.

League standings follow:

ATOMIC LEAGUE

Team	W	L
Pack	27	1
Hawks	27	3
The Gang	18	6
Taxi Squad	20	7
Old Men	17	13
Funky Wambats	10	20
The Quarks	7	20
Rad-Fizz	8	25
Jokers	6	21
Electric Bananas	5	22

NUCLEAR LEAGUE

Over-The-Hill Gang	24	3
Pogo's	25	8
Anti-Quarks	18	9
Newcomers	20	10
Bawlers	15	15
Sloths	15	15
Bombers	11	13
Artie's Army	11	16
The Neutrals	2	25

It's pretty hard to tell what does bring happiness; poverty and wealth have both failed.

BASKETBALL LEAGUE

The two basketball leagues continue in a dead-horse race . . . with two teams atop the Atomic League with three in the Nuclear League.

League standings follow:

ATOMIC LEAGUE

Team	W	L
Has Beens	14	1
G B U's	13	1
Bombers	10	3
Testers	10	4
Grundy Express	9	6
Underdogs	6	8
Electrodes	5	10
Possum Soup	3	11
73'ers	2	11

NUCLEAR LEAGUE

COE	11	2
Wildcats	10	2
Rolling Bones	9	2
Bottlenecks	9	3
Chi-Town Hustlers	7	7
The Gunners	4	8
H-Shift	4	8
Just-For-Fun	4	10
Eco-Trolls	3	10
Isomets	3	10

ORNL BOWLING

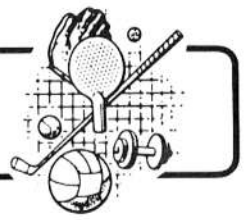
The A League features a deadlock for the Ten Pins, Woodchoppers and the ORAU team. John Meador rolled a 220 game recently.

The C League sees the Damagers out front, barely ahead of the Be-Bops. Joe Cable, Pin Heads, rolled a 257 handicap game and Gino Zanolli hurled a 215 scratch game for the books.

The Oops team and Right On's tie for the lead in the Family Mixed League, a point ahead of the Strikers. George Reece and Edith Duckworth were top bowlers of late.

The ORNL Ladies League puts the Hi-Balls up front by one point, a needle's length ahead of the Pick-Ups and Mouse-chasers. Georgia Guinn's 226 scratch game was a recent high.

RECREATIONOTES



CLIP AND SAVE

CARBIDE GOLF

Five big golf tournament sites have been chosen for Carbide duffers in the Oak Ridge area, according to Recreation. Scratch and handicap scores will be rewarded with golf balls in the in-plant competition.

Sites and dates are as follows:

APRIL 28

Y-12	Wallace Hills
ORNL	Southwest Point
ORGDP	Dead Horse Lake

MAY 18

Y-12	Cedar Hills
ORNL	Dead Horse Lake
ORGDP	Wallace Hills

JUNE 29

Y-12	Dead Horse Lake
ORNL	Cedar Hills
ORGDP	Whittle Springs

JULY 27

Y-12	Southwest Point
ORNL	Whittle Springs
ORGDP	Cedar Hills

SEPTEMBER 7

Y-12	Whittle Springs
ORNL	Wallace Hills
ORGDP	Southwest Point

HIGH POWER RIFLE LEAGUE

The All Carbide High Power Rifle League will start in late March. There will be a series of six matches from spring into early summer. The cost per match will be about $3.50, with ammunition and rifles available to new shooters. Interested employees should contact the Carbide Recreation Office to sign up, extension 3-5833.

ORGDP BOWLING

The ORGDP Women's League puts the Uptowners and Pinups up front, only one point ahead of the Payoffs. Elaine Griffies was bowler-of-the-night recently.

The Wednesday League has the Sandbaggers out front by two points, as the Protectors breath hot in second place. Frank Horton's 263 game was high recently, and Jim Drake's 641 series was high also.

The Tuesday League is still in the hands of the Atoms, as the Double X Team threatens from the second spot. Charley Johnson's 215 accounted for highs recently, and W. Redmond's 663 series was high also.

Religious art show

The Grace Lutheran Church is again sponsoring the religious art show, for the fifth year. The show is announced by chairman John Minro, and will be held May 17-19 at the Community Art Center, Badger Road, Oak Ridge.

Details on entering the competition may be obtained by telephoning the church office, Oak Ridge 483-3787, or by telephoning Nancy Braski, 483-2718.

THE LAST WORD

Great Talkers are like leaky pitchers, everything runs out.

He that is full of himself is empty.

He that falls in love with himself will have no rival.

Franklin

WED RECENTLY — Penny D. Walker and David A. Gladson were married recently at the Calvary Baptist Church. The bride is the daughter of A. F. Walker, ORNL's Plant and Equipment Division; and the bridegroom is the son of Albert G. Gladson, Y-12's Fabrication Division.

Coronary villians

Cholesterol and triglyceride

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning their health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 20, or call the news editor in your plant, and give him your question on the telephone.)

By T. A. Lincoln, M.D.

Most people realize that a high cholesterol level in the blood is associated with an increased risk of developing coronary heart disease. To complicate matters, they are now hearing about the significance of an elevated triglyceride level. Although it may be tough to adjust to, there is impressive evidence that the long-range control of coronary heart disease is going to have to include some type of control of blood fats. Literally thousands of scientific articles have been written. Nevertheless, an elementary understanding should be possible for most patients and will probably be necessary if the discipline required for control is ever to be achieved.

The relationship of diet to the amount of these materials in the blood is probably what causes the greatest disappointment. Some people eat large quantities of ice cream, fatty meat, and butter, yet never have an elevated cholesterol or triglyceride level. Others follow a low-cholesterol low-fat diet and still have high levels.

The reason, of course, is that these compounds are also manufactured by the liver in addition to the amount that is directly absorbed from the diet. The problem therefore is often a genetic or familial defect in fat metabolism in combination with dietary excess. Some people inherit a tendency to manufacture too much of these substances. When these people eat large amounts of fat and carbohydrate, they overload an already "overloaded" system.

Fats in blood

Various hormones such as insulin and the thyroid hormone, thyroxin, also influence the "richness" of the mixture in the blood. For example, when there is too little insulin, the blood glucose rises. Diabetics, and even those not yet diagnosable as diabetics but who have an impaired glucose tolerance, often have a high triglyceride level. Patients deficient in thyroxin often have an elevated cholesterol.

The fats in the blood are mixed with protein and called lipoproteins. The serum lipoproteins are "macromolecular aggregates" of cholesterol, triglyceride, and several other fat compounds and protein. After years of study, it has been possible to classify five basic types of abnormally high lipoprotein mixtures. Since several of these are primarily hereditary, it has been customary to use the term, "familial hyperlipoproteinemia." Each type has different characteristics and the effect management of them depends on an accurate diagnosis.

It is probable that in most cases of high levels of cholesterol or triglyceride which do not readily respond to dietary management, the problem is hereditary or hormonal. To establish the familial nature of the problem, the same abnormality has to be found in a first-degree relative (father, mother, brother or sister).

Although accurate diagnosis sometimes requires a detailed study of the lipoproteins, just determining cholesterol and triglyceride will usually enable a rough classification. For example, a person with a serum cholesterol of 350 milligram percent but with a normal triglyceride level is probably a Type II and a person with a cholesterol of 275 milligrams percent but with a triglyceride of 500 milligram percent is probably a Type IV. The Type II and Type IV are by far the most common and in one study in California, about four percent of adults above age 25 were Type II and nine percent were Type IV. Patients with Type II or Type IV frequently ultimately develop coronary artery disease. In one study of patients under 50 who had blockage of at least one of their coronary arteries, as determined by coronary arteriography, 80 percent had one or another of these types.

The first approach to lowering cholesterol is to reduce the intake of animal or other saturated fats and cholesterol and get rid of excess body weight. When the triglyceride level is high, the main dietary effort is to reduce the intake of sugar and carbohydrates in general, and get the weight down to normal levels. When both the cholesterol and triglyceride levels are high, a combined low fat and reduced carbohydrate diet may be necessary.

Risk factors

Obesity and diabetes are commonly seen in people with elevated triglyceride levels. Individuals who regularly drink alcoholic beverages often have too much triglyceride.

High cholesterol and triglyceride both are risk factors in coronary heart disease and may operate independently of each other. When both are elevated, the risk is greater than with either one alone. The goal in prevention of coronary heart disease is to try to identify persons with these conditions as early in life as possible. When the problem is heredity, the control is more difficult. It will require diet, and in some cases, drug treatment. There are several large field trials now in progress which may help determine the real benefit of several cholesterol lowering drugs. The double-blind study of 8,341 male survivors of heart attacks, who have been taking one of several drugs or placebos since 1966, is due for completion in 1974.

Diet is problem

Vigorous physical exercise, such as jogging two or three miles, lowers the triglyceride level for a couple of days and is a valuable adjunct in treating patients with high triglyceride levels.

Many individuals who have no hereditary problems have elevated cholesterol and/or triglyceride levels. Their problem is largely diet. Weight control, reduction of intake of saturated fats and/or carbohydrates will be necessary. Unfortunately, there is no easy way. When a person has risk factors such as smoking, high blood pressure, strong family history of heart disease, high cholesterol or triglyceride, he would be foolish not to make some effort to bring his blood fats to more normal levels.

NEW BOARD AND OFFICERS — K-25's Credit Union named the above as directors and officers for the new year. They also heard reports of successful operations for 1973.

Nuclear Division credit unions report successful '73 operations

All four Nuclear Division credit unions reported successful years' operations at recent annual meetings.

The Paducah Credit Union saw 322 members attend the January 20 meeting. Phillip B. King won the $100 door prize.

Named to the board of directors were Harold Howell, Jesse Knott, Morris Shelton and Charles Turok. Officers named were Robert Ligon, president; Knott, vice president; and Bill Etter, secretary-treasurer.

Refund to borrowers

A six percent dividend was declared at Paducah, with a 25 percent interest refund to borrowers for 1973. Members receiving more than $10 were to receive checks for the refund.

J. Paul Blakely, president, reported another successful year for the Y-12 Credit Union, citing current assets at $12 million plus. Various other committees reported operations for the past year.

Named to the board of directors were Stone N. Carr, Engineering Division; and Melvin E. Koons, Executive Staff. Lorena Matthews was reelected to the Credit Committee.

K-25 officers named

A total of 365 attended the K-25 Credit Union meeting held January 28 at the OCAW Union Hall, Oak Ridge. V. O. Maggart, Evelyn Cole, C. E. Goodman and J. M. Shumpert were reelected to the board of directors.

James R. Mannis and Leonard Adcox won television sets at the K-25 meeting.

A 5.5 percent dividend, payable on the last quarter of the year was declared at the meeting.

The ORNL Credit Union gave more than 600 silver dollars away at its meeting, closing out 26 years of operation. (Members were promised a silver dollar for attending.)

ORNL officers

Roy F. Pruett was named president; Ward Foster, vice president; and Martha Davis was elected treasurer to serve for 1974.

Daryl Copeland was named to the Credit Committee.

Total assets for the ORNL credit organization jumped from $14 million to more than $19 million in 1973.

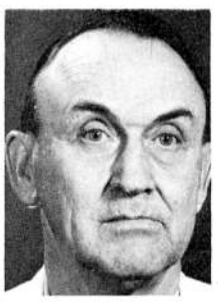
Assets for the four credit unions, to date, are in excess of $40 million!

The credit organizations offer members full loan services for real estate, education, boats and trailers, automobiles, and a host of other things. They also offer signature loans to members.

Families of members may have savings accounts in the credit groups.

Division Deaths

Hal J. Kizer, a laboratory analyst at the Paducah Gaseous Diffusion Plant, died January 28 at a Fulton, Ky., hospital.



Mr. Kizer

A graduate of Clemson University, he was a native of South Carolina.

The Kizer home is at Water Valley, Ky. Survivors include his wife Maude, and son, Hal Jr.

Funeral services were held at the Water Valley Methodist Church with burial in the Water Valley Cemetery.

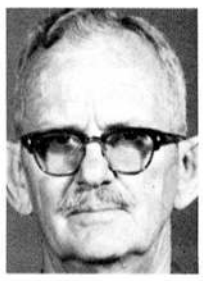
Division Retirees

Fulton Feezor

Three veteran Paducah employees retired at the end of January.

Griffin Feezor, instrument maintenance department, ends 19 years with Union Carbide. He lives at 1621 Jefferson in Paducah where he plans to pursue his hobbies. He and his wife, Ola, also plan to do some traveling.

Willis N. Fulton, a native of Murray, Ky., and his wife, Irene, plan to live at Route 7, Murray. He has worked in both the Industrial Relations and Fabrication and Maintenance Divisions.



Colson

Elbert A. Colson joined Union Carbide in 1952. He worked in the carpenter shop, and retires to his Old Benton Road home.

Sprouse

James L. Sprouse, Y-12's research services, retires at the end of February with more than 20 years company service. He lives at 101 Kelvin, Oak Ridge.

Junkins Reeve

Two well-known ORGDP employees are added to the retirement lists, as J. Howard Junkins will retire at the end of March, and John T. Reeve retired at the end of February.

Junkins, who has been responsible for the technical information department at ORGDP, and the technical information services department at Y-12, serves as chairman of the East Tennessee Section of the American Society.

He and his wife, Ima, live at 396 East Drive, Oak Ridge. They have a daughter, Catherine, who teaches in Morristown, Tenn.

John T. Reeve, manager of auditing, for more than 20 years, retired last month. A native of New York, he is a graduate of Colgate University.

He has accepted an auditing position with Project Management Corporation. The Reeves live at 357 East Drive, Oak Ridge.

THE LAST WORD

Health note: Mixed greens are very good for you . . . especially fives, tens and twenties.

Major Reorganization

(Continued from page 1)

Ohio, plant where he progressed rapidly to assistant plant manager.

Director of manufacturing

He left Fostoria to become plant manager in Cleveland, Ohio, and subsequently was named plant manager in Columbia, Tenn. He was transferred to New York in 1967 as Group Works Manager, and more recently has been director of manufacturing for the Carbon Products Division.

Parks, who served as a pilot with the Army Air Force in World War II, is married and has two daughters.

St. Patrick's Day dance slated by ORNL division

The Chemical Technology Division of ORNL will host its 24th annual Saint Patrick's Day Dance on March 15 at the Legion Hall in Oak Ridge. All Division personnel and their guests are invited to attend.

Festivities include a reception at 8 p.m., followed by dancing to music provided by "The Nineteenth Amendment." Door prizes and other entertainment will be presented during intermission.

Tickets are $3.50 per person. Reservations should be made by contacting Ed Brantley at 3-6756, or Frank Soard at 3-1769.

Society for metals meeting set March 6

The Oak Ridge Chapter of the American Society for Metals dinner meeting will be held March 6 at the Civic Center Social Room in Oak Ridge. Herman Postma, Director of Oak Ridge National Laboratory, will be the speaker. The title of his talk is "Fusion - Unlimited Power for the Future." He will discuss the status of current experiments on demonstrating the scientific feasibility of a controlled thermonuclear reactor and the different proposed reactor concepts. He also will define fusion and indicate future developmental needs.

There will be a reception at 6:30 p.m., dinner at 7:15, and program beginning at 8 p.m. Reservations for the dinner may be made by calling Nancy Cole, extension 3-6978. The public is invited.

Chumbler and Morgan promoted in Paducah Plant's laboratory

Donnie L. Chumbler and Stephen C. Morgan have been named associate chemists in the Laboratory Division of the Paducah Plant, according to Robert W. Levin, division superintendent.

Chumbler will be responsible for quality control services and will be active in the coordination of quality assurance in the laboratory.

A native of McCracken County, he received his B.S. degree from Murray State University, and has done graduate work at the University of Kentucky.

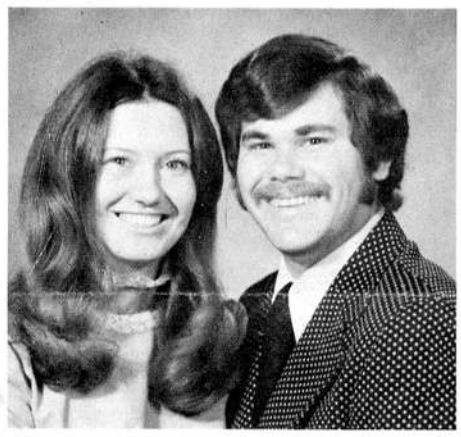
Chumbler and his wife, Bobbie, live at 3310 Pines Road, and have a son, Mark. He enjoys gardening and photography.

Morgan's new position will involve him in plant trouble shooting and analytical development.

He joined Union Carbide in 1969, and is a native of Jasper, Tenn. A graduate of Florence (Alabama) State College, Morgan served four years in the Air Force. He is presently doing graduate work at Murray State University.

Chumbler Morgan

Morgan and his wife, Henrietta, live at 405 South 12th Street, Paducah. They have a son, Steve. He enjoys fishing and growing exotic plants at his home.



ENGAGEMENT ANNOUNCED — Debi Swindle, receptionist in the Personnel Division at ORNL, will marry Sammy Wyers of Winfield, Ala., April 12 at the Claxton Church of Christ. The father of the bride-to-be is T. S. Swindle, a Y-12 Plant employee. The couple will reside in Winfield.

Duncan named to new position at ORGDP

Duncan

Burley P. Duncan has been named a supervisor trainee in the Barrier Manufacturing Division at the Oak Ridge Gaseous Diffusion Plant. He was formerly a utility operator.

A native of Oliver Springs, Duncan came with Union Carbide in 1946, after serving in the European Theater with the U. S. Army.

He and his wife, the former Laverne Woods, live in the Tower Heights section of Oliver Springs. They have four children: Judy Lease, married and living in Florida; Woody, attending Bryan College; Jerry, Oliver Springs High School; and Teresa, Norwood Junior High School.

Duncan enjoys sports and gardening. He is currently attending basketball games at Bryan College where Woody is a starting forward.

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